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SPECIFICATION FOR DENTAL GOLD FOIL

(First Revision)

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SPECIFICATION FOR DENTAL GOLD FOIL

(*First Revision*)

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Indian Standard
SPECIFICATION FOR DENTAL GOLD FOIL
(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 31 January 1985, after the draft finalized by the Precious Metals Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Very few metals are used in the pure condition for dental restoration purposes, gold being outstanding exception. Pure gold used in the form of foil, is an ideal dental material from the standpoint of preserving tooth restoration. Its chief advantages are its colour and high thermal conductivity.

0.2.1 Metal and alloys cohere together at higher temperatures, but if the surface of gold foil is free from absorbed gases and other impurities, it may be welded at room temperature. This property of the foil is taken advantage of in the construction of a gold foil restoration. The foil is cut into strips, rolled into cylinders or pellets of various sizes and heated on a mica tray to remove absorbed gases, thereby making it cohesive. It is necessary that the gold foil used for dental filling should be cohesive and should satisfy other requisites for being a right quality material. The standard has, therefore, been prepared with a view to assisting the dentists, manufacturers and the users for ascertaining the quality of dental gold foil.

0.3 This standard was first published in 1966. Based on the experience gained during the years, the need was felt to revise the standard. In this revision, Appendix A giving typical physical properties have been added.

0.4 The important physical and mechanical properties of gold foil are difficult to determine satisfactorily by conventional methods because of problems inherent in sample preparation. However, the typical physical properties of dental gold foil alongwith gold-platinum foil, also sometime used, are given in Appendix A for information.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result or a test of analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard lays down requirements for one grade of gold foil used for dental fillings.

2. GRADE

2.1 Gold foil shall be of fineness 999/1 000.

2.1.1 The chemical composition of gold foil shall be determined either by the method specified in IS : 1418-1972† or any other established instrumental/chemical method. In case of dispute the procedure in the latest edition of IS: 1418-1972† for chemical analysis shall be the referee method.

3. SUPPLY OF MATERIAL

3.1 General requirements relating to the supply of material shall conform to IS : 1387-1967‡.

4. REQUIREMENTS

4.1 Workmanship — The gold foil before being rolled into cylinders shall have no folds and creases.

4.2 Form and Size — The gold foil shall be rolled or worked into cylinders of assorted sizes which, when unrolled, shall be strips approximately 30 mm long. Cylinders made from gold strips shall be from 3 to 5 mm in length.

4.3 Mass — The gold foil used in making cylinders shall be made from a square 10×10 cm and weighing 250 mg.

4.4 Cohesive Property — The gold foil shall be in such a condition that slight warming will render it cohesive as determined by the test specified in **6.2.2**.

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*Rules for rounding off numerical values (*revised*).

†Methods for assaying of gold and gold alloys (*first revision*).

‡General requirements for the supply of metallurgical materials (*first revision*).

4.5 Packing — The gold foil shall be packed in moisture proof glass vials tested for moisture exclusion in accordance with **6.2.1.** Each vial shall contain 3 g net weight of gold.

5. MARKING

5.1 The vial shall be legibly marked with the name or trade-mark of the manufacturer.

5.1.1 The material may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Insitution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

6. SAMPLING AND CRITERIA FOR CONFORMITY

6.1 Fifty containers or part thereof containing dental gold foil shall be grouped together to form a lot. From each lot, two containers shall be taken at random for inspection and testing. The samples from the individual containers shall be mixed together to constitute the composite sample which shall be tested for the requirement given in **4.** The lot shall be accepted as conforming to the requirements of the specification if the composite sample passes all the requirements.

6.2 Tests

6.2.1 *Moisture Exclusion Test* — The vial along with its contents shall be immersed in water at room temperature for 24 hours. On removal, the vial shall be carefully wiped dry and opened. There shall be no evidence of water inside the vial.

6.2.2 *Cohesiveness Test* — Material from the opened container shall be tested for cohesiveness by warming several cylinders on a sheet of mica. (Direct flame may contaminate the foil and therefore should be avoided. Electric heating should be employed for this purpose.) Then a cylinder shall be lifted lightly with stainless steel tweezers or similar instruments and touched against another cylinder. (They should never be touched with hands to avoid contamination.) The gold foil shall be sufficiently cohesive to permit the second cylinder to be lifted by the first cylinder in at least three tests out of six, using different parts of cylinders in each test.

APPENDIX A

(*Clauses* 0.3 *and* 0.4)

TYPICAL PHYSICAL PROPERTIES OF DENTAL GOLD FOIL (FOR INFORMATION)

A-1. PHYSICAL PROPERTIES

A-1.1 Typical physical properties of dental gold foil are given in Table 1.

TABLE 1 PHYSICAL PROPERTIES OF DENTAL GOLD FOIL

MATERIAL	DENSITY g/cm^3	HARDNESS BHB	TENSILE STRENGTH MPa	ELONGATION PERCENT ON 50 mm GAUGE LENGTH
Pure gold foil	19·1	54	250	12·8
Gold-platinum foil	19·6	86	330	5

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